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Claim Listing

The following claim listing replaces all previous claim listings in this matter.
1-49 (cancelled)

50. (Previously Presented) The substrate of claim 56 wherein differently encoded particles have different biological reagents bound thereto.

51-54 (canceled)

55. (Previously Presented) The substrate of claim 56 wherein the substrate comprises silicon or doped silicon.

56. (Currently Amended) A process of generating several ~~making a matrix of~~ random arrays of encoded particles on a substrate, wherein each of the random arrays are formed by random placement of ~~a group of~~ encoded particles, wherein ~~the particles are encoded with a label, and wherein~~ differently encoded particles have a different label, comprising:

- (i) placing and confining a group of encoded particles into one or more sites on a substrate having a plurality of sites, so as to form a first confined group of particles occupying particular sites;
 - (ii) recording the positions of the encoded particles within said confined group;
 - (iii) placing and confining an additional group of particles into unoccupied sites on the substrate so as to form an additional group of confined particles occupying particular sites;
 - (iv) recording the positions of the particles within said additional confined group; and
- repeating steps (iii) to (iv) several times so as to generate several a random encoded arrays of particles.

57. (Currently Amended) The process of claim 56 wherein the arrangement of the encoded particles in the sites is random.

58. (Previously Presented) The process of claim 56 further comprising the step of affixing the particles onto the substrate.

59. (Currently Amended) The process of claim 56 wherein the encoded particles are placed and confined in the sites by first placing the encoded particles into an electrolyte

solution on a substrate and then applying an electric fields so as to translocate and confine the encoded particles into the sites.

60. (Currently Amended) The process of claim 56 wherein the substrate is a planar electrode, and another planar electrode is provided, and the substrate and the planar electrode face each other but lie in different planes and the electrolyte solution is located between them, and they are used to apply the electric fields, and wherein at least one of the electrodes is light sensitive and an illumination pattern projected thereon is used, in conjunction with the electric field, to translocate the encoded particles to the illuminated areas in the pattern.

61. (Currently Amended) The process of claim 56 wherein the electric field and the illumination pattern are controlled by a computer and a user interface system to confine, translocate, and merge encoded particles as desired.